

**REMARKS**

The Examiner's Office Action dated April 30, 2002 has been received and its contents carefully noted. Concurrently filed herewith is a *Petition for a Two (2) month Extension of Time* that extends that shortened statutory period to August 30, 2002. Accordingly, Applicant respectfully submits that this response is timely filed and fully responsive to the Office Action.

Claims 1-60 were pending in the present application prior to the above amendment, of which claims 1-16 and 30-43 are withdrawn from consideration. By the above amendment, claims 17, 18, 20, 45, 47, 49 and 52 are amended. Accordingly, claims 1-60 remain pending, of which claims 17-29 and 44-60 are believed to be in condition for allowance for at least the following reasons.

**A. 35 U.S.C. §112, 2<sup>nd</sup> Paragraph Rejection**

Claims 17-29, 47-51, 55, 57 and 59 stand rejected under 35 U.S.C. §112, 2<sup>nd</sup> paragraph as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant traverses the rejection in part for at least the following reasons.

Regarding the rejection of claim 20, Applicant amends the rejected claim by the above actions so that the recitation "said major surface" recites "said surface." Antecedent basis for this recitation exists insofar as the term "surface" is previously recited in base claim 18. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Regarding the rejection of claims 17-19, 21-29, 47-51, 55, 57 and 59, it is respectfully contended that each claim clearly apprises one of ordinary skill in the art of its scope. For

instance, each of the rejected claims contains the recitation "when viewed from the substrate normal." The Examiner finds that this recitation is indefinite since "it is not clear how it is viewed from the substrate normal." Applicant contends that this recitation would be acceptable to one of ordinary skill since it is inherent that one could view with respect to "the substrate normal" using ones own eyes and/or a visual aide. The claims do not require a specific manner in which to view the substrate depression or the resist pattern, and thus, no issue of indefiniteness arises.

It should be further noted that Section 2173.02 of the M.P.E.P. expresses that "the requirement of definiteness of 35 U.S.C. §112, second paragraph is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available." In essence, 35 U.S.C. §112, 2<sup>nd</sup> paragraph does not require that Applicant provide for each claim every manner in which the substrate normal may be performed, the only requirement is that each claim be definite to one of ordinary skill in the art, which Applicant contends is clearly done.

Moreover, the Examiner finds that claims 45 and 47 are further indefinite since it is allegedly unclear how the resist pattern becomes either substantially an equilateral triangle or substantially an equilateral hexagon. It is respectfully contended that, in accordance with Section 2173.05(h) of the M.P.E.P., the use of alternative expressions such as "or" is proper, thus, it is believed that the limitation "the resist pattern becomes either substantially an equilateral triangle or substantially an equilateral hexagon" is clear and unambiguous since it merely requires that the resist pattern take the form of an equilateral triangle, or alternatively, an equilateral hexagon.

Insofar as it is believed by Applicant that each claim would have been definite to one having ordinary skill in the art at the time of invention, reconsideration and withdrawal of the rejection is hereby requested.

**B. 35 U.S.C. §102 Rejection**

Claims 17-29 and 49-60 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,337,223 B1 to Kim et al (Hereinafter "Kim") and claims 44-60 stand rejected under 35 U.S.C. §102(a) as anticipated by JP Patent Publication No. 2002223417 to Tomoika. Applicant respectfully contends that claimed invention as presently amended defines subject matter which is clearly patentably distinct over Kim and Tomoika for at least the reasons set forth hereinbelow.

As presently amended, the claimed invention in accordance with claims 17-29 and 44-60 is directed generally to a method for the manufacture of a semiconductor substrate including, *inter alia*, a step of preparing a substrate in which a surface thereof is formed a depression having a triangle or hexagonal figure when viewed from the substrate normal, an inside face of the depression being defined by either a plane having a plane orientation of (1, -1, 0, n) or its equivalent plane.

**1. Kim Fails to Teach the Claimed Invention**

It is respectfully contended that Kim fails to expressly teach or inherently suggest the newly recited limitations set forth in claim dependent claims 17, 18, 49 and 52. For instance, Kim teaches a method of manufacturing a semiconductor device having a semiconductor laser structure formed on a semiconductor layer having a rectangular groove.

On the other hand, the method in accordance with the claimed invention requires that the semiconductor substrate have a depression with a triangle or hexagonal figure such that an inside face of the depression is defined by either a plane having a plane orientation of (1, -1, 0, n) or its equivalent plane. None of the aforementioned features are taught in Kim. Thus, a case of anticipation under §102 cannot be supported. Withdrawal of the rejection and an indication of the allowability of the rejected claims is respectfully requested.

**2. Tomoika Fails to Teach the Claimed Invention**

It is respectfully contended that Tomoika fails to expressly teach or inherently suggest the newly recited limitations set forth in claim dependent claims 17, 18, 49 and 52. For instance, Tomoika merely teaches a method of forming a group III nitride semiconductor layer using a SiO<sub>2</sub> mask on a substrate having triangular or hexagonal figures. Thus, Tomoika lacks the required teaching of a substrate having a depression with a triangle or hexagonal figure such that an inside face of the depression is defined by either a plane having a plane orientation of (1, -1, 0, n) or its equivalent plane, as presently set forth in amended claims 17, 18, 49 and 52 of the present invention. Tomoika also fails to teach a step of exposing either a plane having an orientation of (1, -1, 0, n) or its equivalent plane by subjecting a part of a first semiconductor layer to an etching process, as presently set forth in claims 44-48 of the present invention.

Insofar as none of the aforementioned features are taught in Tomoika, a case of anticipation under §102 cannot be supported. Withdrawal of the rejection and an indication of the allowability of the rejected claims is respectfully requested.

**Conclusion**

Having responded to all rejections set forth in the outstanding non-final Office Action, it is submitted that the claims are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,



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**MARKED-UP VERSION OF THE AMENDED CLAIMS**

17. (Amended) A method for the manufacture of a semiconductor device comprising:

a step of preparing a substrate in which a surface thereof is formed a depression having a [closed figure] triangle or hexagonal figure when viewed from the substrate normal; and

a step of forming on said surface of said substrate a semiconductor layer having a hexagonal crystal structure,

wherein said depression forming step is performed such that an inside face of said depression is defined by either a plane having a plane orientation of (1, -1, 0, n), where said number n is an arbitrary number other than 0, or its equivalent plane.

18. (Amended) A method for the manufacture of a semiconductor device comprising:

a step of preparing a substrate;

a step of forming on a surface of said substrate a depression having a [closed figure] triangle or hexagonal figure when viewed from the substrate normal; and

a step of forming on said surface of said substrate a semiconductor layer having a hexagonal crystal structure,

wherein said depression forming step is performed such that an inside face of said depression is defined by either a plane having a plane origination of (1, -1, 0, n), where said number n is an arbitrary number other than 0, or its equivalent plane.

20. (Amended) The manufacture method of claim 19,

wherein said depression forming step [is the] includes a step of forming on said [major] surface of said substrate defined by a (0, 0, 0, 1) plane a depression having a bottom face whose figure is either an equilateral triangle or an equilateral hexagon.

45. (Amended) The manufacture method of claim 44,

wherein said exposing step [including:] includes a step of applying onto said first semiconductor layer a resist pattern having an opening whose figure is either substantially an equilateral triangle, or substantially an equilateral hexagon when viewed from the substrate normal; and

a step of forming a depression by subjecting said first semiconductor layer to an etching process in which said resist pattern is used as a mask so that said depression has an inside face comprising either a plane having a plane orientation of (1, -1, 0, n) where said number n is an arbitrary number, or its equivalent plane.

47. (Amended) The manufacture method of claim 44,

wherein said exposing step [including:] includes a step of applying onto said first semiconductor layer a resist pattern whose figure is either substantially an equilateral triangle, or substantially an equilateral hexagon when viewed from the substrate normal; and

a step of forming a projection by subjecting said first semiconductor layer to an etching process in which said resist pattern is used as a mask so that said projection has a side face comprising either a plane having a plane orientation of  $(1, -1, 0, n)$  where said number  $n$  is an arbitrary number or its equivalent plane.

49. (Amended) A method for the manufacture of a semiconductor substrate comprising:

a step of forming a substrate having on a surface thereof a depression having a [closed figure] triangle or hexagonal figure when viewed from the substrate normal;

a step of forming on said surface of said substrate a semiconductor layer having a hexagonal crystal structure; and

a step of taking out said semiconductor layer by removal of said substrate,

wherein said depression has an inside face defined by either a plane having a plane orientation of  $(1, -1, 0, n)$ , where said number  $n$  is an arbitrary number other than 0, or its equivalent plane.

52. (Amended) A method for the manufacture of a semiconductor substrate comprising;



a step of forming a substrate having on a surface thereof [a projection] a triangle or hexagonal projection;

a step of forming on said surface of said substrate a semiconductor layer having a hexagonal crystal structure; and

a step of taking out said semiconductor layer by removal of said substrate,

wherein said projection has a side face defined by either a plane having a plane orientation of  $(1, -1, 0, 1)$ , wherein said number  $n$  is an arbitrary number other than 0, or its equivalent plane.